11. Richa

Program Name: Richa.java Input File: richa.dat

The concept of GPA (grade point value) is new to Richa, a high school freshman this year, and she needs some help figuring out hers. The catalog of courses to be considered contains ten courses numbered from 140 to 149, and are designated either Honors or not, with three different possible credit lengths, a full year (4 credits), semester only (2 credits), or a quarter course (1 credit). To practice the calculation process on a simple level, she only wants to consider two courses at a time.

Grade point values are awarded as follows: A=4.5, B=3.5, C=2.5, D=1, and F=0. A '+' or a '-' can be added to each grade (except for F). This either adds or subtracts a quarter point from the value. Honors courses with a grade of C- or better earn an additional half point.

For example, a grade of A- for an Honors course would earn a grade point value of 4.75, subtracting a quarter point from 4.5, and then adding a half point. A D+ for a regular course would earn 1.25 points.

The total number of points earned for a course is the product of the grade point value earned and the number of credits earned. For example, the total points for an A- in a full year Honors course would be calculated as 4.75 times 4, which is a total of 19 grade points. A D+ in a semester course would earn a total of 1.25 times 2, or 2.5. The total GPA for these two courses would be the sum of the two grade point values, divided by the total number of credits, which is the calculation (19 + 2.5) / (4 + 2) = 21.5 / 6 = 3.583.

A C+ for course 144 and a B- for course 142 would result in a GPA of 3.417.
An A for 141 and a B for 148 earns a GPA of 4.0.

Input: An initial integer value N representing N course designations to follow, each consisting of a course number and a two character code, made up of one of the characters 'Y' of 'N' designating Honors or not, and then one of the three characters 'Y' for a full year course, 'S' for semester, and 'Q' for quarter. Following these N course data sets, several four-part data sets follow, each consisting of a letter grade A, B, C, D or F, possibly followed by a + or -, the course number, another letter grade, and then the second course. All data elements on a line are separated by single spaces.

Output: The resulting GPA of each pair of courses, formatted and rounded to three places of precision.

Sample input:

```
10
140 NS
141 NY
142 YY
143 YS
144 NS
145 YQ
146 NQ
147 YY
148 NY
149 YY
A- 149 D+ 143
C+ 144 B- 142
A 141 B 148
```

Sample output:

```
3.583
3.417
4.000
```